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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/673,340	10/14/2000	Peter Kagi	WL AN.P-001	5113

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EXAMINER

THOMPSON, CAMIE S

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 03/26/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Examiner

Camie S Thompson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Priority for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-46 is/are pending in the application.

4a) Of the above claim(s) 21-46 is/are withdrawn from consideration.

5) Claim(s) ____ is/are allowed.

6) Claim(s) 1-20 is/are rejected.

7) Claim(s) ____ is/are objected to.

8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. ____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____

4) Interview Summary (PTO-413) Paper No(s) ____

5) Notice of Informal Patent Application (PTO-152)

6) Other: ____

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions that are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in response to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-20, drawn to a structural component made of fiber reinforced thermoplastic.

Group II, claim(s) 21-34, drawn to a method for manufacturing a structural component.

Group III, claim(s) 35-46, drawn to use of a method for manufacturing a structural component in a feeding device.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Claim 1 is obvious over or anticipated by U.S. Patent No. 5,173,142. Accordingly, the special technical feature linking the two inventions, a structural component made of fiber reinforced thermoplastic, does not provide a contribution over the prior art, and no single general inventive concept exists. Therefore, restriction is appropriate.

The inventions are distinct, each from the other because of the following reasons:

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special

technical features for the following reasons: Groups I and II do not share the same special technical feature with Group III. Groups I and II relate to a structural component made of fiber reinforced thermoplastic. Group III relates to the use of a plastifying feeding device not required for Groups I and II.

3. During a telephone conversation with Carl Oppedahl on 03/01/2002 a provisional election was made traverse to prosecute the invention of Group I, claims 1-20. Applicant in replying to this Office action must make affirmation of this election. Claims 21-46 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

5. The information disclosure statement filed 11/20/2000 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Specification

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

7. The claims in this application do not commence on a separate sheet in accordance with 37 CFR 1.52(b). Appropriate correction is required in response to this action.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.

9. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. The terms "resp." and "to such an extent" in claim 1 are relative terms which render the claim indefinite. The terms "resp." and "to such an extent" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. These terms have not been defined and do not distinctly point out that the two matrices are compatible.

11. The term "in preference" in claim 6 is a relative term which renders the claim indefinite. The term "in preference" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claim 6 does not distinctly point out that the matrices of the long fiber reinforcement and the continuous fiber strands are identical.

12. The term "preferably" in claims 7 and 11 is a relative term that renders the claim indefinite. The term "preferably" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claim 7 does not distinctly point out that the long-fiber reinforcement must consist of glass. Claim 11 does not distinctly point out that the length of the fibers in the long-fiber reinforcement is within a range of 10-30 mm.

13. The term "at least partially" in claim 2 is a relative term that renders the claim indefinite.

The term "at least partially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claim 2 does not distinctly point out that the interfaces of the structural component are connecting layers.

14. The term "at least as great" in claim 16 is a relative term that renders the claim indefinite.

The term "great" is not defined by the claim. The specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claim 16 does not distinctly point out that what the layer thickness is for the continuous fiber strands.

15. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 8 recites the broad recitation 45-50% by volume

of fiber content for the continuous fiber strands, and the claim also recites 40% that is the narrower statement of the range/limitation.

16. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 11 recites the broad recitation of fiber length range of 10-30 mm for the fibers in the long-fiber reinforcement, and the claim also recites 5 mm, which is the narrower statement of the range/limitation.

17. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 12 does not distinctly point out that the continuous fiber strands surround the load-bearing inserts.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 1-8 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Billiu, U.S. Patent No. 5,173,142 in view of Guerrini et al., U.S. Patent No. 5,362,431.

The Billiu reference discloses a structural body with at least two structural components wherein the components are made out of a first and second rigid, fiber reinforced thermoplastic matrix, whereby the first and second fiber, reinforced thermoplastic matrices are fused together to create a hollow section assembly as per instant claims 1, 3, 6, 12, 13, 19 and 20. See abstract and column 1, lines 17-24. Billiu does not disclose using a long-fiber reinforced thermoplastic matrix and continuous fiber strands with a thermoplastic matrix. However, Guerrini discloses using long-fiber reinforced thermoplastics for preparing shaped bodies. Guerrini also discloses using continuous fibers with a thermoplastic matrix because they prevent problems with thermosetting and increase mechanical load (column 1, lines 1-31).

The Billiu reference discloses the first and second fiber, reinforced thermoplastic matrices joined together by a fusion bond (see Figure 2; column 2, lines 66 to column 3, lines 1-7; and column 4, lines 34-41). Therefore, Billiu meets the claim limitations as in instant claims 2, 4, 14 and 15-18. Neither the Billiu nor the Guerrini references disclose that the continuous fiber strands run in different directions as per instant claim 5. However, it is known in the art that continuous fiber

strands that run in different directions in the thermoplastic matrix give rise to the increased mechanical properties as shown by column 1, lines 60-68 of Guerrini.

The Billiu reference does not disclose the matrices, the types of fibers or the fiber volume content as per instant claims 7 and 8. However, the Guerrini reference discloses using polypropylene, polyamides, polyimides, aliphatic polyester resins such as polyethylene terephthalate and polybutylene terephthalate, polycarbonates and polyether sulfones (see column 3, lines 12-31). Guerrini also discloses the use of carbon fibers or glass fibers for the continuous fiber strands and the long-fiber reinforcement (see column 3, lines 8-11). The Guerrini reference also discloses a fiber volume higher than 20% (see column 3, lines 34-37).

The Guerrini reference also discloses the fiber length size within a range of 2-10mm as instant claim 11(see column 4, lines 16-17). Therefore, it would be obvious to one of ordinary skill in the art to modify Billiu's structural component with carbon or glass fibers that provide greater reinforcement. It would also be obvious to include a volume higher than 20% and a fiber length size between 2 –10 mm because these amounts have been shown to improve the processabilty of the fibers and higher mechanical strengths.

20. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Billiu, U.S. Patent No. 5,173,142 in view of Guerrini et al., U.S. Patent No. 5,362,431 and further in view of Cheshire, U.S. Patent No. 6,106,650.

The Billiu and Guerrini references are relied upon for claims 1-8 and 11-20 as above. Neither the Billiu nor the Guerrini references disclose that the continuous fiber strands are twisted. The Cheshire reference teaches a fiber-reinforced composite have fiber-reinforcing elements

incorporated in a matrix. The Cheshire reference discloses that the continuous fibers in reinforced composites are twisted so that they are unable to slide relative to each other due to the friction between the fibers (see column 1, lines 41-49). Therefore, it would be obvious to one of ordinary skill in the art to use twisted, continuous fibers being motivated by decreasing elongation of the fibers under tension.

21. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Billiu, U.S. Patent No. 5,173,142 in view of Guerrini et al., U.S. Patent No. 5,362,431 and further in view of DellaVecchia, U.S. Patent No. 4,612,238.

The Billiu and Guerrini references are relied upon for claims 1-8 and 11-20 as above. Neither the Billiu nor the Guerrini references discloses that the continuous fiber strands in the fiber reinforced composite are needle-bonded, wrapped or enveloped by a braided tube. The DellaVecchia reference teaches a fiber reinforced thermoplastic composite containing reinforcing fibers in a thermoplastic matrix. The DellaVecchia reference discloses that the continuous fiber strands are needled-bonded so that the fiber strands are held together. Therefore, it would be obvious to one of ordinary skill in the art to use needle-bonded fiber strands as taught by DellaVecchia for the purpose of increasing the mechanical strength of the fiber composite.

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Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (703) 305-4488. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly, can be reached at (703) 308-0449. The fax phone numbers for the Group are (703) 872-9310 {before finals} and (703) 872-9311 {after finals}.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Cst
3/19/02

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

